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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,488	05/10/2004	Ham-Huah Hsu	12792-US-PA	3487
31561	7590	10/23/2007	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE			JOHNSON, RYAN	
7 FLOOR-1, NO. 100			ART UNIT	PAPER NUMBER
ROOSEVELT ROAD, SECTION 2				
TAIPEI, 100			2817	
TAIWAN				
NOTIFICATION DATE	DELIVERY MODE			
10/23/2007	ELECTRONIC			

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/709,488	HSU, HAM-HUAH	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ryan J. Johnson	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 24 August 2007.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-8 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3,6 and 7 is/are rejected.  
 7) Claim(s) 4,5 and 8 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 10 May 2004 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1.) Certified copies of the priority documents have been received.  
 2.) Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### ***Response to Arguments***

1. Applicant's arguments filed August 24<sup>th</sup>, 2007 have been fully considered but they are not persuasive. While the examiner admitted in the prior action, that the prior art does not teach the "PWM modulator including a latch, an absolute value calculator, a counter, a comparator, and positive and negative PWM outputs", the examiner implied that the prior art lacked these elements in the context of claims 4,5, and 8 and their parent claims. While the prior art does not show an output switch outputting either a positive output signal or a negative output signal, Tanaka (U.S. Patent No. 4,772,883, cited in previous action) does disclose the broader amended limitation wherein the PWM signal comprises a positive PWM signal and a negative PWM signal (PWMout comprises a "positive" signal after inverter 73 and a "negative", or inverted, signal before inverter 73). As a result, the allowable subject matter has been clarified below.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (U.S. Patent No. 4,772,883).

4. Claims 1,6: Tanaka discloses a circuit and method for performing pulse width modulation (Fig.4) suitable for generating a PWM signal (PWMout) according to an

input data (D7-D0) with M (8Q-5Q) +N (4Q-1Q) bits, the pulse width of the PWM signal dithering in  $2^N$  frames (Tanaka describes dithering in 16 frames, which is  $2^4$ ; col.4,61-64) and corresponding to a value of the input data (col.4,43-64), comprising:  
a pulse density modulator (51,6), for receiving the least N bits of the input data (D0-D3) and generating a pulse density modulation signal (Cout of 51), wherein a number of pulses of the pulse density modulation signal in  $2^N$  frames (16 frames) correspond to a value of the least N bits of the input data (col.4,61-64);  
a first adder (52), electrically coupled to the PDM (51,6) for generating a PWM data by adding the most M bits of the input data to a value of the pulse density modulation signal (col.4,43-64); and  
a pulse width modulator (7), electrically coupled to the first adder (52) for generating a PWM signal (PWMout) dithering in  $2^N$  frames according to the PWM data (Tanaka describes dithering in 16 frames, which is  $2^4$ ; col.4,61-64).  
wherein the PWM signal comprises a positive PWM signal and a negative PWM signal (PWMout comprises a “positive” signal after inverter 73 and a “negative”, or inverted, signal before inverter 73).

5. Regarding claims 2,3, and 7, see the previous office action.

***Allowable Subject Matter***

6. Claims 4,5 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: Prior art does not show the PWM modulator

including a latch, an absolute value calculator, a counter, a comparator and positive and negative PWM outputs controlled by comparator operating a PWM output switch, in the context of claims 1-4 and 8.

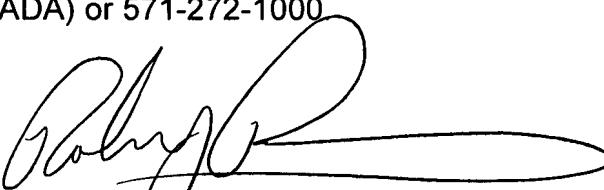
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan J. Johnson whose telephone number is 571-270-1264. The examiner can normally be reached on Monday - Thursday, 9:00 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RJJ/

  
Robert Pascal  
Supervisory Patent Examiner  
Technology Center 2800